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Taking the Office to the Field

*Workforce management technology puts
office data on the dashboard, and vice versa*

By **John Lowrey**

With all the information they can access and all the forms they can fill out directly from their trucks, it sometimes seems that Southside Electric Cooperative's linecrews need never see the inside of the office again. The 50,000-meter system, based in Crewe, Virginia, is the first in the nation to make use of a low-cost mobile workforce management system from Qualcomm (www.qualcomm.com), melding data from the office and the field to let crews track service orders, fill out time-on-job sheets, locate other co-op vehicles and review staking orders—all from the truck cab.

The new system has produced dramatic efficiency improvements in everything from collections and reconnects to fixing outages and keeping track of the truck fleet, according to Linda Easter Davis, Southside Electric's information systems supervisor. The co-op recovered its investment quickly, she says, and that was before the automatic vehicle location program kicked in, allowing crews in

the field, as well as dispatchers in the office, to see where the trucks are.

"The efficiency improvement to our collections process, alone, truly paid for the system," Davis says. "AVL was an added bonus."

Qualcomm's use of a satellite communications network makes the package even more promising, says Julius Hackett, engineering manager at Southside Electric. "Although the data channel to the vehicle is ben-

eficial for day-to-day operations," Hackett says, "I see the value of satellite communications as being a priceless option when working under severe weather conditions."

Davis says that capability proved itself when the co-op helped its sister co-ops in the South recover from Hurricane Katrina. "While our crews helped in Mississippi and Louisiana," she recalls, "we continued to communicate with them and see their vehicles on the

INFO TO GO

Four things you need to know about maintenance and power quality:

1. GIS is the foundation for an effective workforce management system.
2. Flexible systems that can be deployed incrementally provide the most value—and the smoothest transition.
3. Improved safety for one-person crews can justify these systems.
4. Packages can pay for themselves in less than two years through efficiency improvements.



Roger Bales works on a line in Cullman County, Alabama, while Keith Tankersley checks something in the work order on a laptop.

map, and the men continued to enter their time using Qualcomm.” She adds that the co-op has developed an emergency plan built around the system “that we hope to never use, but it allows all data including time, materials, cause and location to be entered as the work is being done.”

Best of all, Southside Electric’s crews get all of these functions on an easy-to-use unit they keep in the cab.

“It is basically a keyboard with five function keys,” Davis says, adding that upgrades are on the way this year. “We are implementing Qualcomm’s new OmniVision unit, which has a color display with touch-screen capability, improved clarity, text-to-speech, turn-by-turn navigation and increased bandwidth.”

Southside Electric is on the leading edge of the mobile workforce management evolution that’s just starting to pick up steam among co-ops, according to Skip McClimans of Power System Engineering (www.powersystem.org). McClimans should know: He’s a co-author of *A Summary Report on Mobile Workforce Management*, recently published by NRECA’s Cooperative Research Network.

In a survey of 50 co-ops of varying size, CRN found that half of them plan to add workforce management systems within the next couple of years. With the rising use of linemen working alone in the field, safety considerations by themselves can justify the investment. And co-op technology consultants report payback periods of two years or less for broader packages, thanks to reduced driving time and other efficiency improvements.

McClimans endorses that cautious approach. “This is not a light decision,” he says. “You are going to live with it for a while, and it will affect a lot of people. It is a jungle out there, and often a consultant can guide you down the right path.”

That path, he and other authorities agree, includes incremental additions to work management technology. Replacing paper maps with a computerized geographic information system is a basic step, and so is automating the staking process to get rid of paper work orders. Automatic vehicle location often comes next.

Ultimately, though, McClimans says the goal is to send the right employee, equipped with the right tools, to the right job by the best route. “This is all about having people work smarter, not harder, and giving them the tools to make that possible,” he says.

PHOTOGRAPHS BY ED THOMPSON

Sawnee EMC in Cumming, Georgia, had that idea in mind when it enlisted EnerVision (www.enervision-inc.com) to help it review workforce management options from a wide range of product vendors. Carl Badgett, Sawnee EMC's vice president of information services, worked with EnerVision's consultants to settle on a low-cost system from Passport Corp. (www.passportcorp.com) that uses standard cellular phone communications and handheld data units.

"We didn't need all the features available in more expensive options," Badgett says. "The main goal was to increase the timeliness of data exchange during the collections process. That is where paper breaks down. If we schedule a collection service order and the member pays, we will issue an order to recall that job. If they were shut off and they pay, we will issue an order to turn them back on. If someone had a connection scheduled for today but they call in and say they didn't close on the house, we can change the date and queue them for another date. If an employee has truck problems, we can move work from one person to another through our dispatchers. Before, we had to get on the radio and say let's meet here and trade paperwork."

The streamlined routing and dispatch program is based on Sawnee EMC's home-grown customer information system. Badgett is now planning to integrate it with what he describes as a "grab bag" of other databases and functions, including financials from Southeastern Data Cooperative (www.sedata.com), geographic information from ESRI (www.esri.com) and outage manage-



ment from National Information Solutions Cooperative (www.nisc.coop).

That kind of multi-system coordination is key to developing a strong mobile workforce management package, says Gary McNaughton, vice president of Cornice Engineering and technical adviser to NRECA's MultiSpeak® integration initiative.

"Three years ago we set out to define work management," he says. "Unfortunately, at that point no one at the table had a system, so we set it aside. Now CIS vendors are starting to offer what they call work management systems, and we need to start working on those interfaces for the next major release of MultiSpeak."

Most co-ops, McNaughton argues, don't really need the glitzy route- and work-opti-

Cullman Electric Staking Technician Steven O'Brien uses UAI's UtilityCenter software out in the field.

mization features of a full-blown mobile workforce management system. "Paperwork automation is exactly what they need," he says, adding that functions are often available in a CIS package or staking systems from Powel-MiniMax (www.powelminimax.com) or Partner Software (www.partnersoft.com).

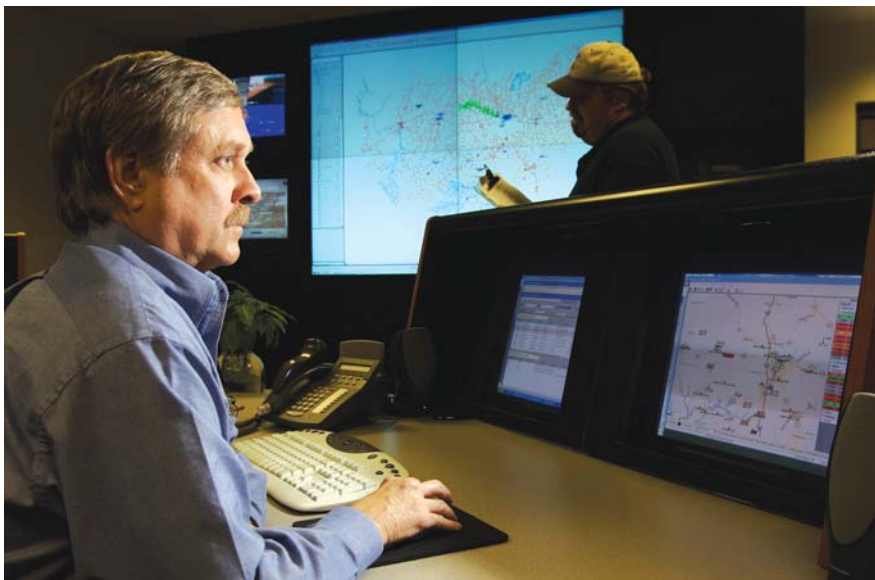
Powel-MiniMax, in fact, has recently added a new component to its work order management system. A couple of co-ops are testing the company's new just-in-time inventory control feature, according to Sean Solberg, vice president of research and development at Powel-MiniMax.

"This is for fairly large jobs, usually worked by a contractor," he explains. "When designing the line, they just send two materials lists to a distributor. One list is for all the materials. The other is grouped by individual station location with global positioning satellite X-Y coordinates. All the materials for that location can be palletized and drop-shipped to the exact location as they are needed."

Powel-MiniMax's innovation underscores the importance of a geographic information system and a complete inventory of a co-op's physical plant, according to Robbie Barks, GIS specialist at Jackson Purchase Energy Corp. in Paducah, Ky. "Only then can you even attempt to manage it using various tools, including work order management, crew management and outage management," he says.

His co-op uses ESRI's Enterprise GIS software, OMS and work management pack-

Doug Harding, lead dispatcher at Cullman Electric Cooperative in northern Alabama, takes a close look at a trouble spot.



ages from UAI (www.uai.com) and interactive voice response and engineering software from Milsoft Utility Solutions (www.milsoft.com). Six Jackson Purchase trucks are testing an AVL system from Cloudberry (www.cloudberry.com), and Toughbook laptop computers from Panasonic (www.panasonic.com/toughbook) round out the field kit.

All told, Barks estimates, a co-op can expect workforce management to increase efficiency by nearly 20 percent. Some studies put the efficiency improvements even higher, climbing to as much as 30 percent.

Kyle Baggett, vice president of engineering and operations for Cullman Electric Cooperative in Cullman, Alabama, agrees with Barks that a good geographic information system is the foundation for managing field crews. "Everything else builds on it," he says. "GIS is the first logical step."

The co-op uses UAI's UtilityCenter for outage management, staking and GIS-based facility inventories. Cullman Electric also has AVL from Cloudberry, laptops in all its vehicles, a voice response system from Centurion (www.centonline.com) and Milsoft's Windmil system analysis software. The next phase in the co-op's integration campaign will combine its automatic meter reading program from TWACS by DCSI (www.twacs.com) with the geographic and outage management, along with financial and customer information from Applied Technology Solutions Inc. (www.atcorporation.com).

The combined data power of all these systems has helped Cullman Electric through some tough times—most recently the aftermath of Hurricane Katrina. Baggett says hurricane repairs taught him the value of making data available throughout the co-op, especially in the field.

"When you have over 100 men out there trying to get the lights back on," he says, "you need all the information you can get to make sure everyone goes home in one piece. The amount of information available to our employees has grown tenfold. They have learned to use the technology in their day-to-day decision-making. I don't think anyone in our organization would want to go back to the way we used to do things."

User satisfaction like that doesn't happen by accident. As Charles Drinnan, executive consultant for LogicaCMG (www.logicacmg.com), points out, co-ops should look for a flexible system with proven integration capability if they want to improve efficiency

and reduce costs.

"Users don't have to implement the whole suite at once," he explains. "Most users implement the components that offer them the most benefit first and expand later. This reduces cost and the effort to configure. The systems seem large and complicated until you get into them and realize you only need some of the capability to implement a productive solution."

Pat Kelly, North American business development manager for TVD Inc. (www.tvdinc.com), says that's especially true for smaller utilities.

"For our smallest customers," Kelly says, "we have a Web-based AVL solution and we are developing a Web-based job dispatch solution. Both of these products require minimal hardware and nominal administration, yet offer highly functional, feature-rich solutions."

However, he adds, the industry still needs to define integration standards for work management—and the bottom line is that suppliers must work together. "For any integration strategy to be truly effective, it requires the cooperation of vendors."

But the goal of more efficient workforce management is worth the work, he continues. Streamlined dispatching and fleet management, combined with the safety benefits, mean co-ops can expect work management systems to pay for themselves in 18 months to two years, he says. And with more and more linemen working alone in the field, he adds, the safety factor alone may be enough to justify the investment.

Anthony Palizzi, director of sales for Spa-

cient Technologies (www.spacient.com), says a workforce management system's return on investment ranges from 20 percent to 35 percent. Better staff morale is an intangible extra, he says, although he adds that the significant changes to standard operating procedures can make some employees anxious.

Nonetheless, many co-ops that belong to the National Information Solutions Cooperative are upgrading to a NISC package of which mobile workforce management is an integral part, according to Randy Schroder, NISC's electronic solutions manager.

"Work management," he says, "is the heart and center of the NISC integration roadmap." ■

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Member Service Representative Teri Seymore sees the same maps and data as the dispatchers and line crews when taking calls during outages.

